

CHAPTER 13. EMPLOYMENT IMPACT ANALYSIS

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CHAPTER 13. EMPLOYMENT IMPACT ANALYSIS

13.1 INTRODUCTION

The U.S. Department of Energy (DOE) utilizes the employment impact analysis to estimate national job creation or elimination resulting from proposed new energy efficiency standards. New standards may result in the reallocation of expenditures for purchasing and operating equipment. DOE will conduct this analysis in preparation for the notice of proposed rulemaking. DOE will estimate national employment impacts on major sectors of the U.S. economy, using publicly available data and incorporating various energy price scenarios. DOE will make all methods and documentation available for review.

The imposition of standards can affect employment both directly and indirectly. Direct employment effects are changes in the numbers of employees at the plants that produce the covered equipment, along with affiliated distribution and service companies. DOE will evaluate direct employment effects as part of its manufacturer impact analysis, as described in Chapter 12. Indirect employment effects from the imposition of standards may reflect expenditures that are shifted between goods (the substitution effect) and changes in income and overall expenditure levels (the income effect).

DOE expects new equipment standards to decrease energy consumption, and therefore to reduce expenditures for energy. The savings in energy expenditures may be spent on new investment and other items. The standards also may increase the purchase price of equipment, including the retail price plus sales tax, and may increase installation costs.

Using an input-output model of the U.S. economy, the employment impact analysis seeks to estimate the year-to-year effect of expenditure impacts on net economic output and employment. A simple model might involve reduced expenditures for energy and reallocation of that money toward other sectors of the economy. DOE intends the employment impact analysis to quantify the indirect employment effects of changes in expenditures. It will evaluate direct employment effects in the manufacturer impact analysis (Chapter 12 of the Technical Support Document).

13.2 METHODOLOGY

To investigate combined direct and indirect employment impacts from new standards, DOE will use the Pacific Northwest National Laboratory's (PNNL's) Impact of Sector Energy Technologies (ImSET) model.¹ PNNL developed ImSET, a spreadsheet model of the U.S. economy that focuses on 187 sectors most relevant to industrial, commercial, and residential building energy use, for DOE's Office of Energy Efficiency and Renewable Energy. ImSET is a special-purpose version of the U.S. benchmark national input-output (I-O) model, designed to estimate the national employment and income effects of energy saving technologies that are

deployed by DOE's Office of Energy Efficiency and Renewable Energy. In comparison with versions of the model used in earlier rulemakings, the current version allows for more complete and automated analysis of the essential features of energy efficiency investments in buildings, industry, transportation, and the electric power sectors. The ImSET software includes a computer-based I-O model that has structural coefficients to characterize economic flows among the 188 sectors. ImSET's national economic I-O structure is based on the 2003 Benchmark U.S. table,² specially aggregated to 187 sectors.

DOE intends to use the ImSet model to estimate changes in employment, industry output, and wage income in the overall U.S. economy resulting from standards-related changes in expenditures in various sectors of the economy. For example, standards for residential clothes washers may reduce energy expenditures and increase equipment prices for consumers. Those expenditure changes are likely to reduce energy sector employment. At the same time, the standards may increase investment. DOE designed the employment impact analysis to estimate the year-to-year net national employment effect of the various expenditure flows associated with each potentially new efficiency standard.

REFERENCE

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- ² Lawson, A.M., K.S. Bersani, M. Fahim-Nader, and J. Guo (December 2002), “Benchmark Input-Output Accounts of the United States, 1997,” *Survey of Current Business*, pp. 19-110. (Last accessed March 29, 2010.)
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